

RESEARCH AND DEVELOPMENT CENTRE OF ELECTRIC MACHINES



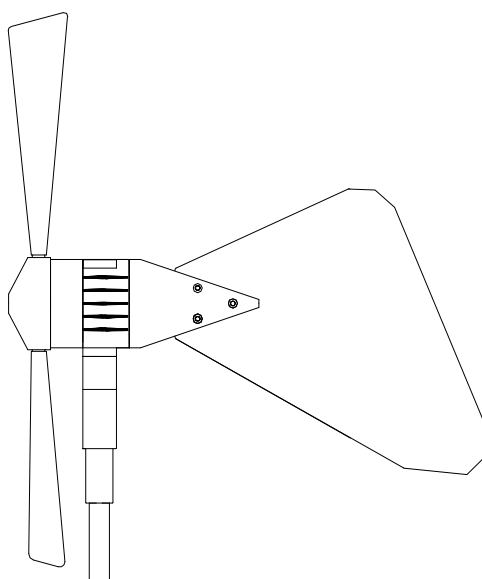
USER'S MANUAL

MARINE WINDMILL GENERATOR

MODEL: KOMEL JSW 750-12

VOLTAGE: 12V

SERIAL NO.:



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USER'S MANUAL MARINE WINDMILL GENERATOR JSW 750-12

Thank you for choosing the JSW 750-12 Marine Wind Generator designed and manufactured by KOMEL in Poland.

This windmill is one of the most efficient currently available micro-generators in its class. It was especially developed for boat/yacht battery charge applications and was extensively tested in the severe North Sea conditions. All care has been taken to deliver a long-lasting, trouble-free and reliable product that you can fully depend on in the most extreme marine environments.

In times of increased awareness of global environmental issues we believe this alternative energy product will be an ideal and efficient source of electricity on your boat. The use of this product will help decrease the impacts of carbon footprint we humans leave on our Planet.

Congratulations on your purchase.

This user's manual contains product technical data, manufacturer's instructions and technical requirements to ensure correct operation of this windmill.

To ensure optimum safety and performance of the equipment please thoroughly read the entire manual prior to installation. Should you have any questions or if in doubt, refer to a competent installer, your supplier or manufacturer for further clarifications.

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NOTE. Manufacturer reserves the right to introduce product changes without notice.



CHECKLIST

Handle with care! The JSW 750-12 is solidly made but can be damaged if dropped or carelessly handled.

Check that you have received in your delivery one cartons containing:

- 1 pc. Generator body with tail
- 1 pc. Hub with three propeller blades installed
(air blades angle is factory adjusted at the optimal angle 35°)
- 1 pc. Hubcap
- User's manual

Required for installation:

- Mounting mast
- Extension cable
- Batteries (optimal capacity 280 Amph)
- Battery terminals
- Connection blocks
- Cable clips
- Etc.

Additional/optional system items:

- Regulator
- Charge splitters
- Volt and ammeters

Tools:

- Spanners, screwdrivers, wire strippers, etc.

SAFETY ISSUES

The JSW 750-12 as an electrical equipment is capable of producing high voltages.

Always exercise caution and due diligence to avoid electric shocks. All electrical works, installation and maintenance must be performed by properly qualified tradesmen and in accordance with local regulations.

Plan the windmill installation in advance, considering its weight and shape. Although its construction is hardy and durable the propeller blades and tail are fragile and can be easily damaged if handled carelessly. Exercise due care at all times, enlist help of experienced tradesmen.

It is best to proceed with installation on a dry, calm day or indoor, if possible.

Complete as much of the installation as possible at ground level before erecting the windmill.

Always pay special attention to correct polarity when connecting the windmill to an electrical circuit. Reverse polarity connection will result in damage to the generator.

Never approach the path of the blades when the windmill is operating as severe personal injury may result.

Always stop the windmill and secure the blades before attempting maintenance.

Always disconnect all batteries before undertaking maintenance.

The JSW 750-12 is a 12V Direct Current Electric Generator. Your batteries, wiring, fittings and equipment have to be 12V DC to avoid injury and/or equipment damage.

Do not operate the JSW 750-12 without batteries connected.

Do not submerge the windmill in water or any other liquid.

FEATURES

The JSW 750-12 is extremely efficient by design, and ideal for charging batteries of about 280 Amph capacity.

This compact windmill is a weatherproof, durable, maintenance-free product designed to perform in marine environment at the wind speeds of up to 32 m/s (app. 115 km/h).

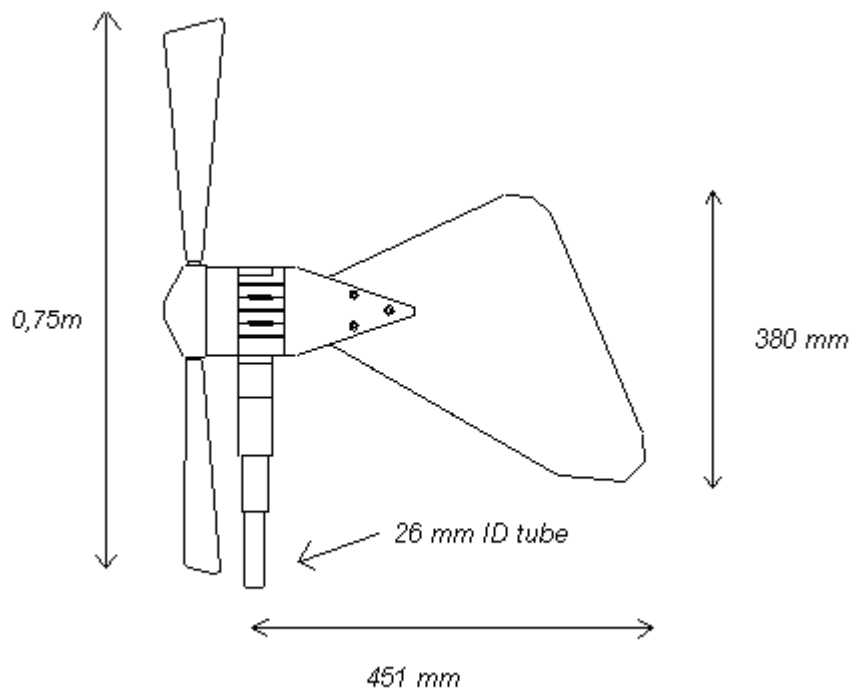
It is a low noise and low vibration, unobtrusive machine that can safely operate in close proximity to people without nuisance.

This is one of the most efficient micro-generators. The high efficiency was achieved through operational research of the propeller blade shape together with specially designed 3-phase, permanent magnets generator for the exclusive windmill application.

The tri-blade propeller is mounted on the rotor shaft and the angle of each blade is adjustable. For the optimal blade angle is 35° ($\pm 5^{\circ}$). The rudder (tail) is an integral part of the generator casing, and mounted opposite propeller.

Mounting of the windmill allows for vertical axis rotation.

DIMENSIONS



TECHNICAL PARAMETERS

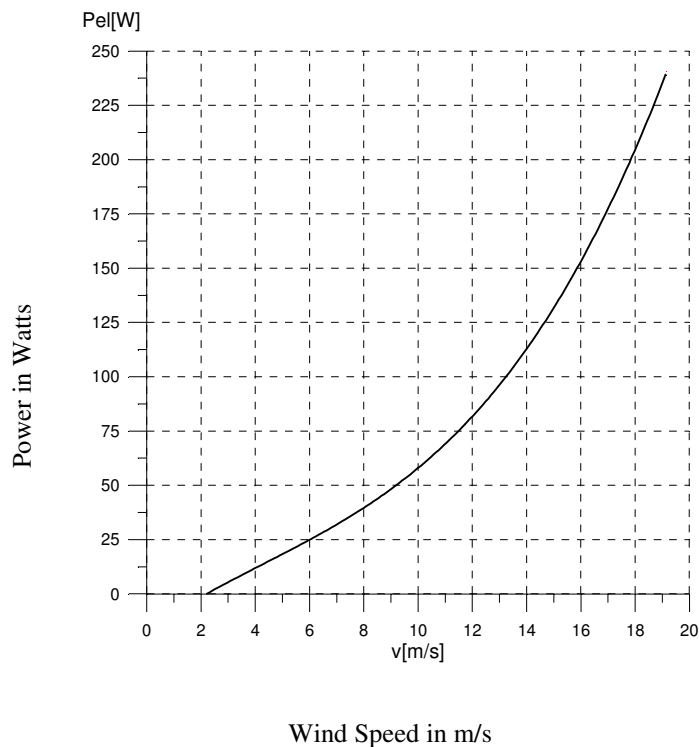
- Quiet operation and Low vibration
- Low friction construction
- Smooth running during wind velocity fluctuations

- Propeller outside diameter: 750 mm
- Windmill turning circle: 500 mm
- Number of blades: 3 pcs
- Blades adjustment angle: 35° (+/- 5°)
- Net weight (excl. mast): 8.5 kg
- Mounting mast inside diameter: 26 mm
- Optimal battery capacity: 280 Amph

- Nominal Power: 150 W
- Nominal Voltage: 13.8 V
- Nominal Wind Velocity: 16 m/s
- Max. Power: 240 W
- Max. Wind Velocity: 30 m/s
- Min. Wind Velocity: 2.5 m/s

JSW 750-12 OUTPUT

Rated Output 150W at 16 m/s, 12V, 280Amph Batteries



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NOTE: the output may differ from chart data depending on batteries and charge/discharge level.

INSTALLATION

Positioning the windmill on a yacht or boat will be influenced by the deck layout and other equipment fitted. It is important to ensure that the blades are at sufficient height such that injury to the crew from rotating blades is unlikely.

Also ensure that no part of the windmill can come into contact with any other part of the boat's fittings or rigging.

The JSW 750-12 should be fitted to a mast made of thick-gauge tube. The mast should be securely braced or guyed. The bracing struts or wires should be firmly attached to the mast at a point 200 to 300 mm below the lowest point of the blades.

The JSW 750-12 mounting shaft has an outside diameter of 26 mm and is designed to slide into standard steel tubing. Check it for fit with the proposed mounting mast.

Should the windmill shaft not fit the mast tube correctly, consider sourcing an alternative mount mast. Do not attempt an installation where the windmill shaft is a loose fit in the mast, as this will lead to instability during operation, and could lead to machine damage.

Where the windmill is fitted to a tall mounting mast, do not leave the loose and freely hanging cable. If possible, lead the cable inside the mast or ensure the hanging cable is fastened to the mast by cable clips. In case of the longer cable runs, ensure the weight of the hanging cable is taken by a strain relieve, rather than simply hanging on the JSW 750-12 cable connection.

ELECTRICAL CONNECTIONS

It is recommended that the JSW 750-12 is hard-wired to the battery system.

Connecting cables between JSW 750-12 and the battery bank should be appropriately sized to minimise transmission losses. For low voltage machines transmission losses are always a consideration, so it is advisable to keep cable runs as short as possible and be prepared to use heavier gauge cables for longer runs.

In yacht/boat installations, the cable should enter the yacht via a cable gland. Deck plugs and sockets should not be used.

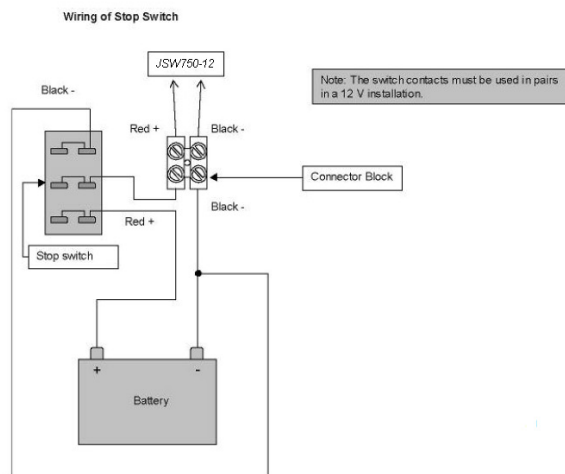
REGULATOR

The regulator's function is to prevent battery damage through overcharging. The same might be achieved by appropriately sizing the battery capacity to your windmill generator's nominal power output. Where JSW 750-12 is used for charging app. 280 Amph battery bank the regulator is not needed. However, we strongly recommend that a regulator is installed as part of the system for smaller capacity battery banks.

STOP SWITCH (optional)

A stop switch provides a convenient way of shutting down your JSW 750-12 for maintenance or ahead of expected storm conditions. The switch should be a double throw 'break before make' type, rated at least at 20 A DC. When operated, the switch disconnects the batteries from the JSW 750-12 before short-cutting the turbine. This short-circuit will not damage the JSW 750-12 but has the effect of breaking the rotor blades to a slow spin; NOTE: read "Windmill Parking" section of this manual, below.

Ensure the correct form of switch is used as shorting the batteries will cause damage. Suitable stop switch is supplied with JSW 750-12.



ELECTRICAL INSTALLATION

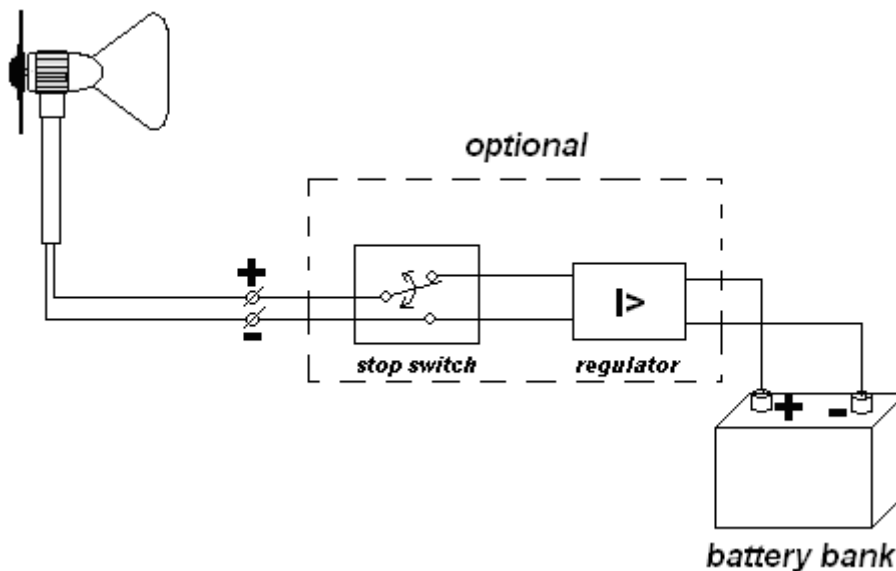
The JSW 705-12 must always be connected to a battery when in use!

The JSW 750-12 is fitted with 2.5 sq mm output cable. Use extension cable of at least this cross-section. The polarity (+) and (-) of the output cables is marked accordingly.

Remember to observe the correct polarity:

RED to POSITIVE (+) and BLUE to NEGATIVE (-)

Connect the output cable to the battery bank using suggested wiring diagram for guidance.



Single battery bank installation

WINDMILL PARKING

Do not operate JSW 750-12 in high wind conditions (wind speeds in excess of 30 m/s).

Windmill Parking means to stop the machine from operating. To do this, manually adjust the propeller blades plane parallel to the wind direction. The windmill will not operate in this position.

To park the windmill, you need to fasten windmill's stabilizer to the yacht's fittings or rigging. Use the small opening provided in the tail. Additionally, fasten one of the propeller's blades to the mounting mast using a fastening band.

Ideally, park your windmill before expected strong wind conditions. Attempting to do so in stormy weather might be dangerous, difficult and could result in personal injury or equipment damage. In order to minimise the risks involved, first use the Stop Switch and then promptly park your windmill.

NOTE: 1/. read the "Stop Switch" section above.

2/. in moderate wind conditions, the use of Stop Switch will stop the generator. But in strong wind conditions the windmill will still operate, causing short circuit current in the generator. This may damage generator if continuing for over 15 seconds.

MAINTENANCE

The JSW 750-12 is well-engineered from quality products and should give years of trouble-free service.

Routine maintenance would consist of periodically examining windmill's mounting, propeller hub's fastening, and the air blades for signs of damage.

Blades exhibiting chips or nicks should be replaced. Any loose bolts/nuts should be fastened.

We recommend servicing at the end of yachting season.

NOTE:

Opening of the windmill's casing will void product warranty (propeller hub is not part of the casing).

TROUBLESHOOTING

The JSW 750-12 should perform in line with, or exceed, the values given in the output graph. Should outputs fall below expectations, first expect turbulence in the wind stream. If poor output cannot be attributed to site conditions, re-check the whole installation against the wiring diagram and also look for poor or loose connections.

Finally, ensure that the batteries are in good conditions.

If you still suspect a problem with the windmill, consider the following:

- Have the air blades been fitted the right way round? The rotor should spin clockwise when the JSW 750-12 is viewed from the front.
- Do the air blades spin freely? The rotor should spin without any undue noise or friction. If not, is the stop switch in the 'brake' position, or could there be another short circuit in the output cables? NOTE: make sure you disconnect the batteries before trying to find out!
- Is the JSW 750-12 free to move about its yaw axis? It should move easily with undue noise or friction.



GUARANTEE

MARINE WINDMILL GENERATOR JSW 750-12

The JSW 750-12 Windmill Generator is guaranteed against faulty parts and manufacture for a period of twelve months from date of purchase. The faulty unit and this Guarantee form should be returned prepaid to:

BOBRME „KOMEL”

ul. Moniuszki 29, 41-209 Sosnowiec, Poland.

phone: (+48-32) 299-93-81; fax: (+48-32) 299-93-89

zaklad@komel.katowice.pl

www.komel.katowice.pl

Damage caused by mishandling, faulty installation or accident is not covered. BOBRME “KOMEL” can not be liable for damage caused by the JSW 750-12 in the event of accidental contact, incorrect installation or insufficient care. Not following the User's Manual will void this guarantee.

BOBRME “KOMEL” is committed to provide after sales care as fully and efficiently as possible in order to support our customers.

This guarantee does not affect your statutory rights.

Production date:

Serial Number:

Purchase date:

Dealer:

